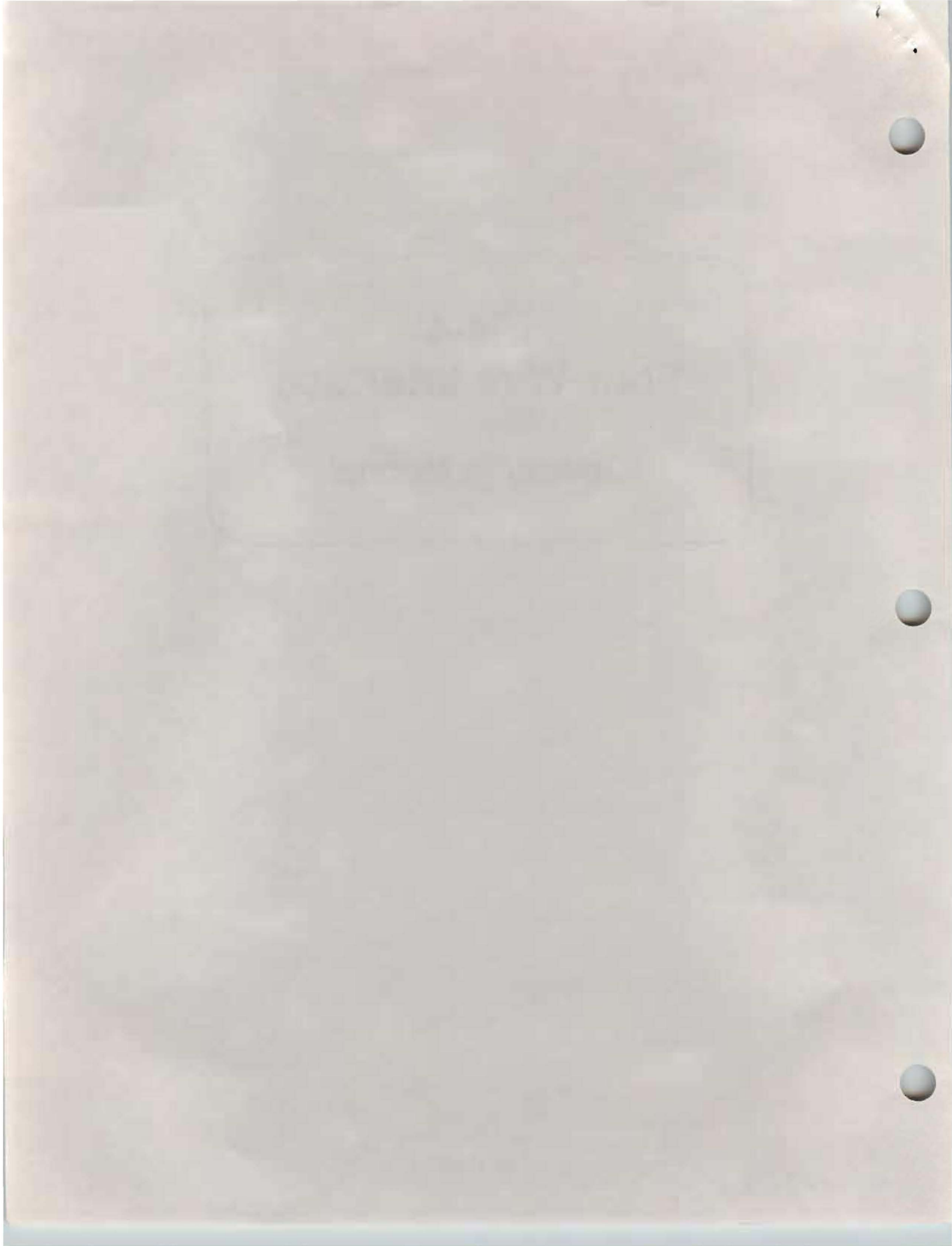


IF4-4
Four-Wire Interface
Operation Manual

CLEAR-COM 810061
July 1983

810061-MAN-B-A



I. INTRODUCTION TO THE IF4-4

The IF4-4 Four-Wire Interface enables up to four 4-wire communication systems (such as TV cameras) to interface with the Clear-Com Intercom System. It also allows 3-wire systems to interface with Clear-Com. The IF4-4 was designed to match standard 600 ohm transmit/receive lines (at normal levels) to Clear-Com line level.

The IF4-4 is powered by the Clear-Com System, which connects to the IF4-4 with standard two-conductor shielded mic cable. The cable is run from the output connector of a Clear-Com Main or Remote Station to the IF4-4. One wire carries 30 VDC, the other wire carries the intercom signal, and the shield acts as common ground. The IF4-4 rear panel provides four 3-pin,

female, XLR connectors (D3F) for interfacing up to four different Clear-Com lines.

The IF4-4 rear panel provides four 4-pin, male XLR connectors (D4M) for interfacing up to four 3-wire or 4-wire systems to the Clear-Com lines. You can connect the 3-wire/4-wire systems to separate intercom channels, or you can put two, three, or all four on one "Party-Line."

The IF4-4 front panel contains transmit, receive, and sidetone level controls for each interfaced system.

The IF4-4 mounts in a standard 19" equipment rack; its front panel is 1-3/4" high.

IMPORTANT: Please read ALL the following instructions before connecting and operating the system.

II. SYSTEM CONNECTIONS

The IF4-4 provides four D4M connectors (designated J1 on the PCB Schematic, page 6) to interface with:

- 600 ohm, balanced, four-wire (two send, two receive) **systems** or
- 600 ohm, unbalanced, three-wire (one send, one receive, one common) **systems**

- 1) Route two-conductor shielded cable from a Clear-Com Main or Remote Station output connector to the IF4-4 rear panel, and input it to the D3F connector(s) (designated J2 on the PCB schematic).

The pin assignments in Clear-Com 3-pin intercom connectors are:

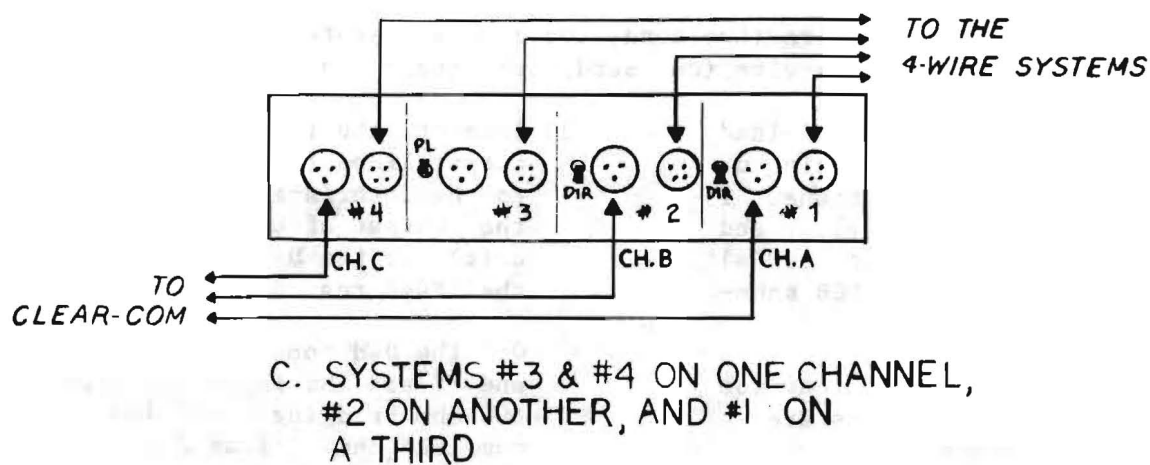
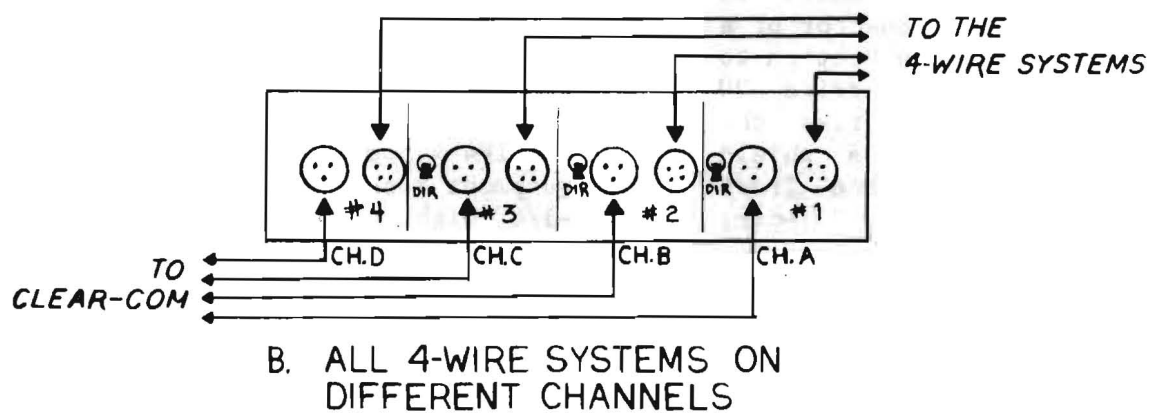
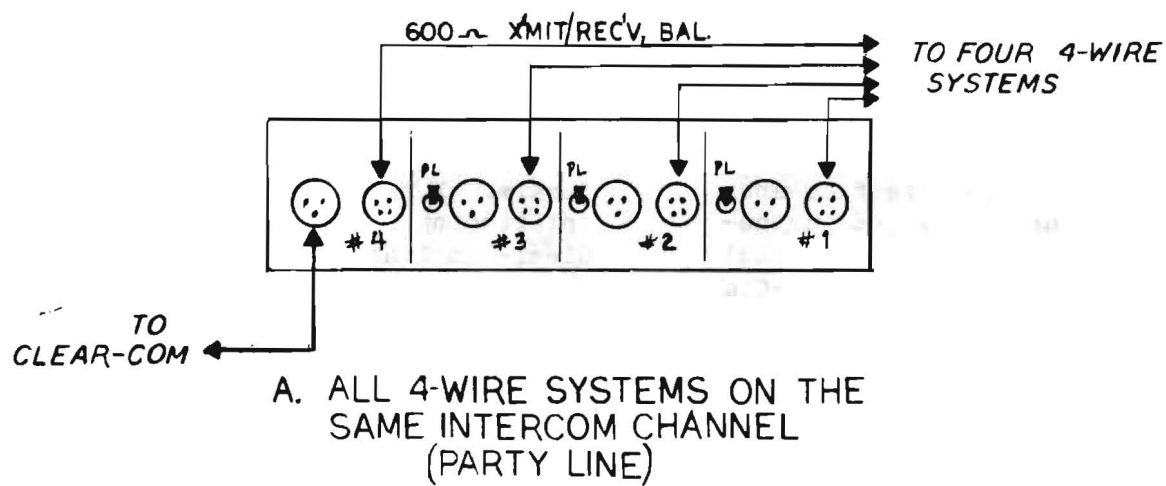
- Pin 1 - common
- Pin 2 - +30 volts DC
- Pin 3 - intercom audio

- 2) Connect the three- or four-wire output lines from the system(s) to be interfaced (for instance, the output of a camera control unit) to the D4M connectors on the IF4-4 rear panel.

On the D4M connectors, Pins 1 and 2 are the input (receive), 600 ohm bridging, -30 dBm minimum/10k ohm. Pins 3 and 4 are the output (transmit), +15dBm maximum level/600 ohm.

(continued)

FIG. 1 IF4-4 INTERFACE CONFIGURATIONS



DIAGRAMS ABOVE SHOW REAR PANEL OF IF4-4;
Please note toggle switch settings

II. IF4-4 SYSTEM CONNECTIONS, continued

2) (continued from page 1)

Note: The conductor pairs in a 4-wire balanced input are interchangeable; in other words, it doesn't matter which conductor in the first pair connects to Pin 1 or 2 (in the D4M), or which conductor in the other pair goes to Pin 3 or 4.

3) If you wish to use the IF4-4 for interfacing with three-wire systems, tie Pins 1 and 3 together on the D4M connectors. These pins are the common connection.

4) If all interfaced systems are to be on the same intercom channel, just input one Clear-Com line to the IF4-4, using the D3F connector associated with Interface #4 (the rear panel is labelled to indicate this Party-Line connector). Then set all the "Party Line/Direct" toggle switches on the rear panel to the "Party Line" setting. See Figure 1, Diagram A.

5) If you want each 3-/4-wire system to be on a separate intercom channel, input four different Clear-Com lines (e.g., Channels A-D) to the four "C-C Line" connectors. Set the "Party Line/Direct" toggle switches to the "Direct" setting. See Figure 1, Diagram B.

6) Other combinations are possible; for instance you can put one camera operator on Channel A, another one on Channel B, and two more on Channel C. To do so, input one C-C line (such as Channel C) to the Party Line D4F connector, connect the two cameras to Interfaces #3 and #4, and set the #3 toggle switch to "Party Line." Input separate Clear-Com Channels A and B to the C-C line inputs for Interfaces #1 and #2, set both toggle switches to "Direct," and connect the other two cameras to the D4M inputs. See Figure 1, Diagram C.

III. OPERATING CONTROLS

Each interfaced system is associated with three controls on the IF4-4 front panel: Transmit, Receive, and Sidetone.

The **Transmit** control adjusts the volume level of the Clear-Com signal as heard by the 3-wire or 4-wire system operators.

The **Receive** control adjusts the speaking volume level of the 3-wire/4-wire system users, as heard by the Clear-Com users.

The **Sidetone** control prevents the 3-wire/4-wire system operators from hearing each other when they're interfaced with separate Clear-Com lines.

Setting the Sidetone Levels

After you've input the Clear-Com lines to the IF4-4, but BEFORE you connect the three- or four-wire systems to the interface:

1) plug a standard Clear-Com headset into the D4M connector for Interface #1 (on the IF4-4 rear panel).

2) turn the Transmit control and the Receive control for Interface #1 all the way up (fully clockwise).

3) put on headset and talk into the mic while turning the Sidetone control for Interface #1 clockwise. As you turn it, it will

Setting the Sidetone Levels, continued

- 3) be more difficult to hear your own voice in the earphones. Set the control for maximum null, or the point at which you cannot hear your voice in the earphones as you talk.
- 4) unplug the headset, then plug it into the D4M connector for Interface #2. Repeat Steps 2 and 3 described above; then do the same for Interface #3 and Interface #4.

IV. SPARE PARTS

Clear-Com can supply you with any or all of the following replacement parts for the IF4-4. Please call your dealer or the factory (415) 861-6666 for price and ordering information.

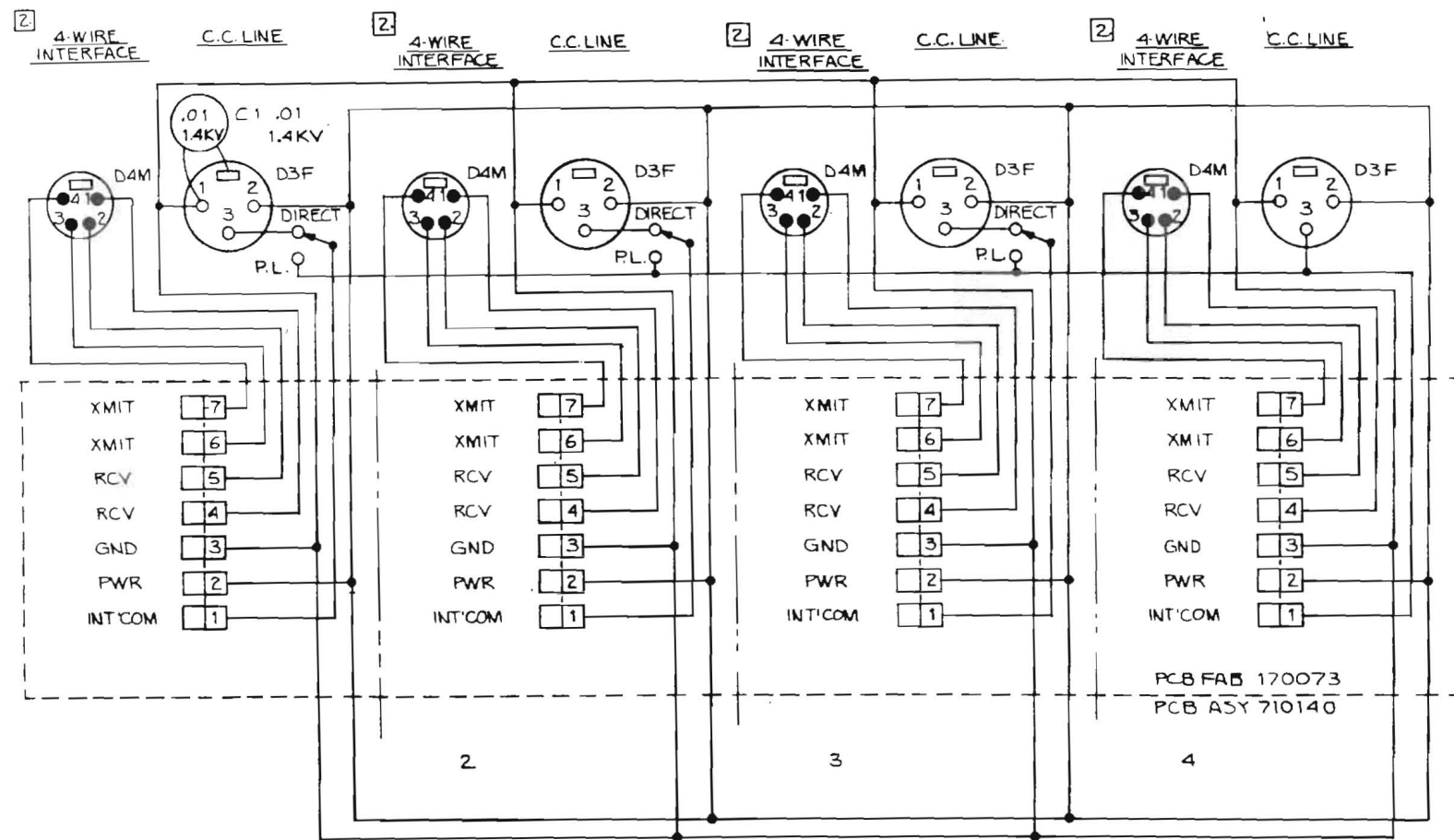
Part #	Part Description	Qty.	Location
240017	Handle, chrome, for 1.75" rack	2	front panel
240025	Knob, Piher, red	4	front panel
240026	Knob Piher, green	4	front panel
240027	Knob, Piher, blue	4	front panel
470035	Trimpot, 50k	4	internal
510044	Switch, toggle	3	rear panel

V. SPECIFICATIONS

Transmit Level:	Adjustable, -30 to +14 dBm
Transmit Impedance:	600 ohms
Receive Level:	Adjustable, -30 to +20 dBm
Receive Impedance:	10-15k ohms
Frequency Response:	200-15k Hz 6 dB down
Minimum Sidetone Balance:	30 dB
Distortion:	.5% THD
Power Requirements:	+30 volts DC @ 38 mA (all 4 interfaces)
Connectors:	(4) 3-pin XLR female, Clear-Com line (4) 4-pin XLR male, 3- or 4-wire interface line

IF4-4 FOUR-WIRE INTERFACE ADDENDUM TO OPERATION MANUAL

Please note: If you are NOT using all four interfaces on the IF4-4, the Transmit and Receive level controls for the unused channels must be turned all the way down (full null), or the unit will exhibit oscillation.



NOTES:

1. FOR SCHEMATIC OF INDIVIDUAL SECTIONS:
REF DWG 710139-SCD-C-A
2. FIG 1. SHOWS 4-WIRE-INTERFACE-CONNECTOR I.D. LABEL
AS IT APPEARS ON REAR PANEL.
3. FIG 2. IDENTIFIES C.C. LINE (D3F) CONNECTIONS.

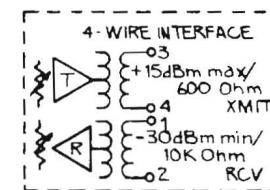


FIG 1.

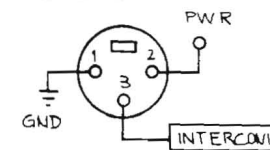
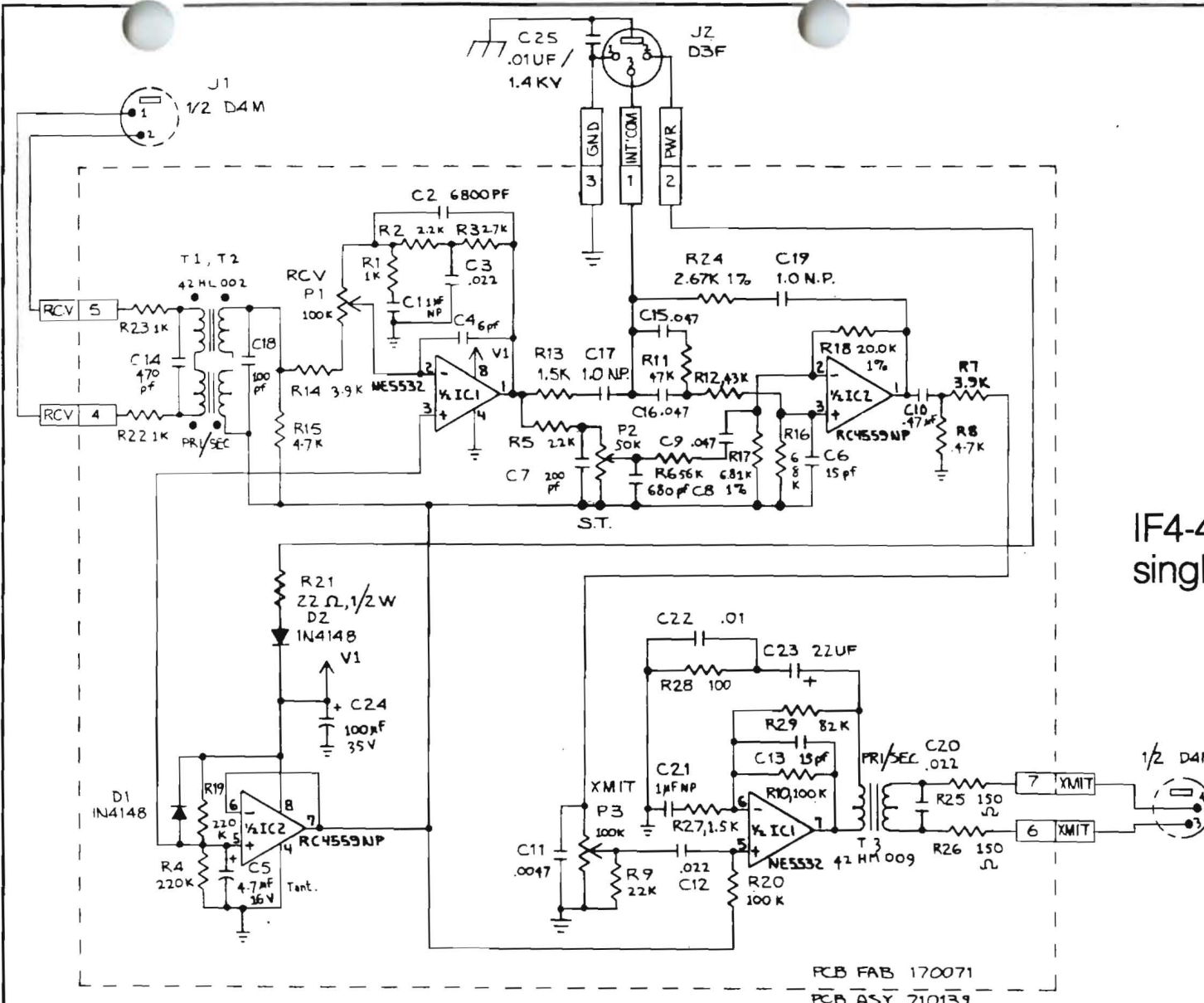


FIG 2.

Clear-Com.
intercom systems

IF4-4
System
Schematic



IF4-4 Circuit Board Schematic
single interface section shown

NOTES: UNLESS OTHERWISE SPECIFIED

1. - ALL CAP VALUES ARE IN MICROFARADS.
2. - ALL RES. VALUES ARE IN OHMS.
3. ALL RESISTORS ARE 1/4W 5% CARBON FILM
4. ALL 1% RESISTORS ARE 1/8W " "
5. ALL 1/2W RESISTORS ARE 5% " "
6. LAST REF. DES. USED: IC2, T3, P3, R29, C24, D2.

10/1/09